

[FIG. 1]

- 1: THREE-PHASE POWER SOURCE
- 2: INPUT FILTER
- 3: BIDIRECTIONAL SWITCH GROUP
- 4: INPUT POWER VOLTAGE PHASE/MAGNITUDE DETECTOR
- 5: INPUT VOLTAGE VALUE
- 6: INPUT VOLTAGE PHASE
- 7: CONTROLLER
- 8: DRIVE CIRCUIT
- 9: PWM CYCLOCONVERTER CONTROL UNIT
- L1, L2, L3: LOAD

[FIG. 2]

- A1: DETAILED DIAGRAM FOR INPUT POWER VOLTAGE PHASE/MAGNITUDE DETECTOR 4
- A2: POWER VOLTAGE
- 41: INPUT VOLTAGE PHASE DETECTION CIRCUIT
- 42: ARTIFICIAL DC BUS VOLTAGE DETECTION CIRCUIT
- 43: INPUT VOLTAGE EFFECTIVE VALUE DETECTION CIRCUIT
- 44: IDEAL INPUT VOLTAGE CALCULATOR
- 45: INPUT VOLTAGE UPPER AND LOWER LIMIT CALCULATOR
- 46: VOLTAGE VALUE COMPARATOR
- 5: INPUT VOLTAGE VALUE
- 6: INPUT VOLTAGE PHASE

[FIG. 3]

A1: INPUT VOLTAGE

A2: MAXIMUM VALUE AND MINIMUM VALUE OF INPUT VOLTAGE

A3: MAXIMUM VALUE V_{max}

A4: MINIMUM VALUE V_{min}

A5: ARTIFICIAL DC BUS VOLTAGE

A6: INPUT VOLTAGE PHASE

A7: 360 DEGREES

A8: 0 DEGREE

A9: INTERVAL

[FIG. 4]

A1: INTERVAL 1, ENLARGED

A2: INTERVAL 1

[FIG. 5]

A1: CARRIER WAVE

A2: VOLTAGE COMMAND

A3: INTER-OUTPUT LINE VOLTAGE

[FIG. 6]

1: THREE-PHASE POWER SOURCE

2: INPUT FILTER

3: BIDIRECTIONAL SWITCH GROUP 3 AND PWM CYCLOCONVERTER

CONTROL UNIT 9

L1 TO L3: LOAD

11: THYRISTOR INPUT FILTER

12: THYRISTOR

L4: THYRISTOR LOAD

13: PWM CONVERTER INPUT FILTER

14: PWM CONVERTER

15: INVERTER

L5: INVERTER LOAD

[FIG. 7]

A1: PHASE VOLTAGE (IDEAL VALUE)

A2: PHASE VOLTAGE (ACTUAL VOLTAGE VALUE)

A3: INTERVAL

[FIG. 8]

A1: PHASE VOLTAGE (IDEAL VALUE)

A2: PHASE VOLTAGE (ACTUAL VOLTAGE VALUE)

A3: INTERVAL

[FIG. 9]

A1: PHASE VOLTAGE (IDEAL VALUE)

A2: PHASE VOLTAGE (ACTUAL VOLTAGE VALUE)

A3: ARTIFICIAL DC BUS VOLTAGE

A4: INTERVAL

[FIG. 10]

A1: UPPER LIMIT VOLTAGE VALUE

A2: LOWER LIMIT VOLTAGE VALUE

A3: INTERVAL

5: INPUT VOLTAGE VALUE

[FIG. 11]

A1: UPPER LIMIT VOLTAGE VALUE

A2: LOWER LIMIT VOLTAGE VALUE

A3: INTERVAL

5: INPUT VOLTAGE VALUE

[FIG. 12]

A1: POWER VOLTAGE

41: INPUT VOLTAGE PHASE DETECTION CIRCUIT

42: ARTIFICIAL DC BUS VOLTAGE DETECTION CIRCUIT

43: INPUT VOLTAGE EFFECTIVE VALUE DETECTION CIRCUIT

44: IDEAL INPUT VOLTAGE CALCULATOR

45: INPUT VOLTAGE UPPER AND LOWER LIMIT CALCULATOR

46: VOLTAGE VALUE COMPARATOR

47: INPUT VOLTAGE ABNORMALITY DETECTION CIRCUIT

5: INPUT VOLTAGE VALUE

6: INPUT VOLTAGE PHASE

9: POWER VOLTAGE ABNORMAL SIGNAL

[FIG. 13]

A1: POWER VOLTAGE

41: INPUT VOLTAGE PHASE DETECTION CIRCUIT

42: ARTIFICIAL DC BUS VOLTAGE DETECTION CIRCUIT

5: INPUT VOLTAGE VALUE

6: INPUT VOLTAGE PHASE

[FIG. 14]

A1: START

A2: INTERVAL

A3: END

A4: PHASE VOLTAGE

[FIG. 15]

122: POWER VOLTAGE DETECTOR

123: CONTROLLER

124: GATE SIGNAL SYNTHESIZER

125: GATE DRIVER

130: INPUT VOLTAGE INFORMATION DETECTOR

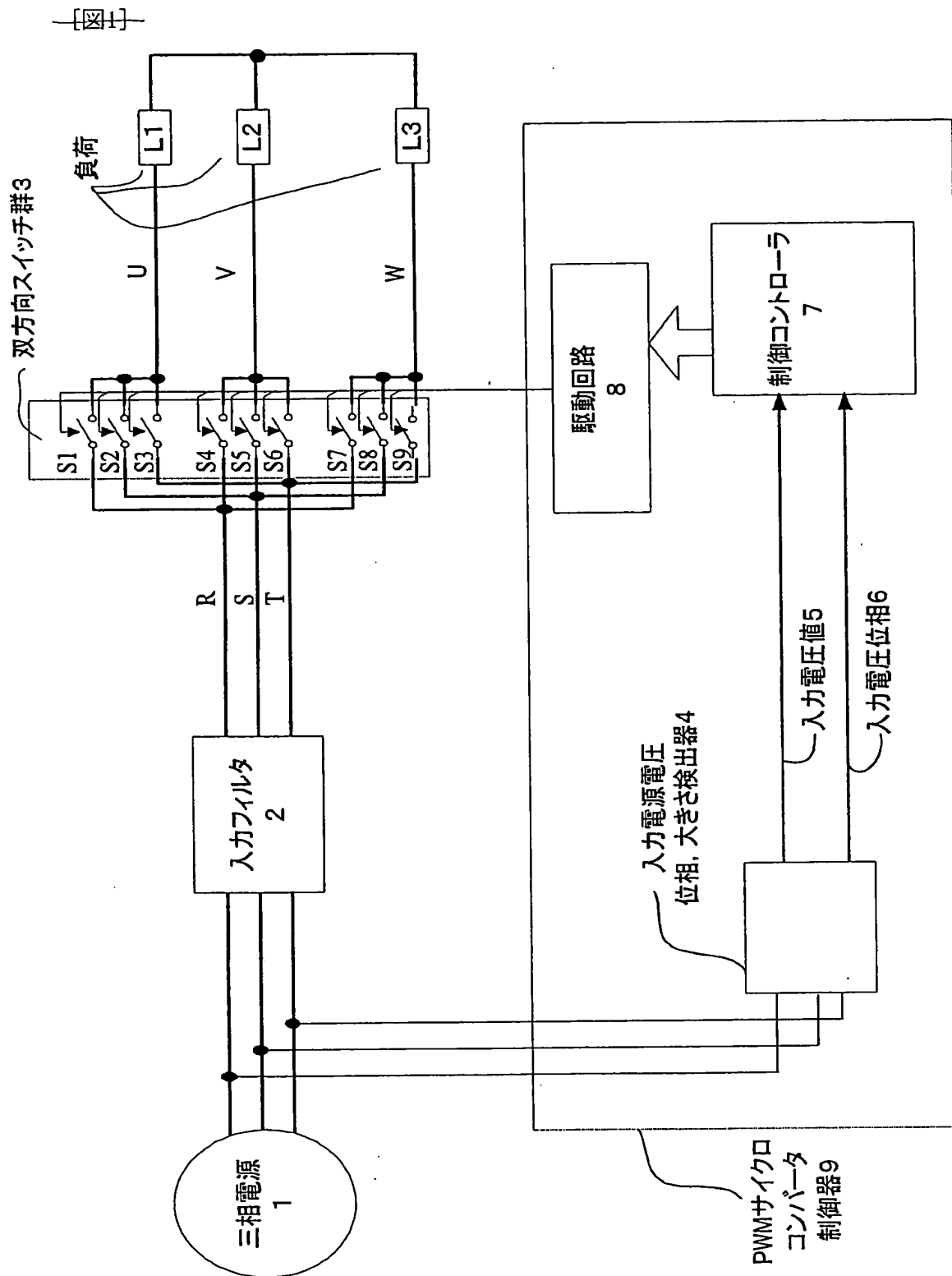
150: PROTECTION GATE SIGNAL GENERATOR

A1: POWER VOLTAGE INSTANTANEOUS VALUE

A2: POWER VOLTAGE PHASE

A3: OUTPUT VOLTAGE COMMAND

Fig. 1

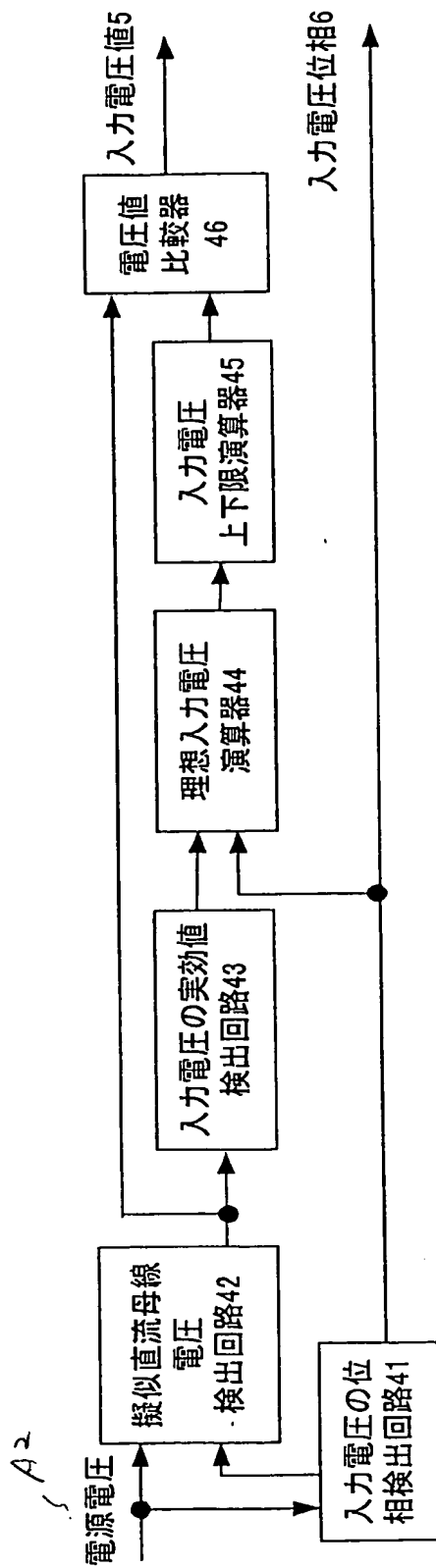


[図2]

Fig. 2

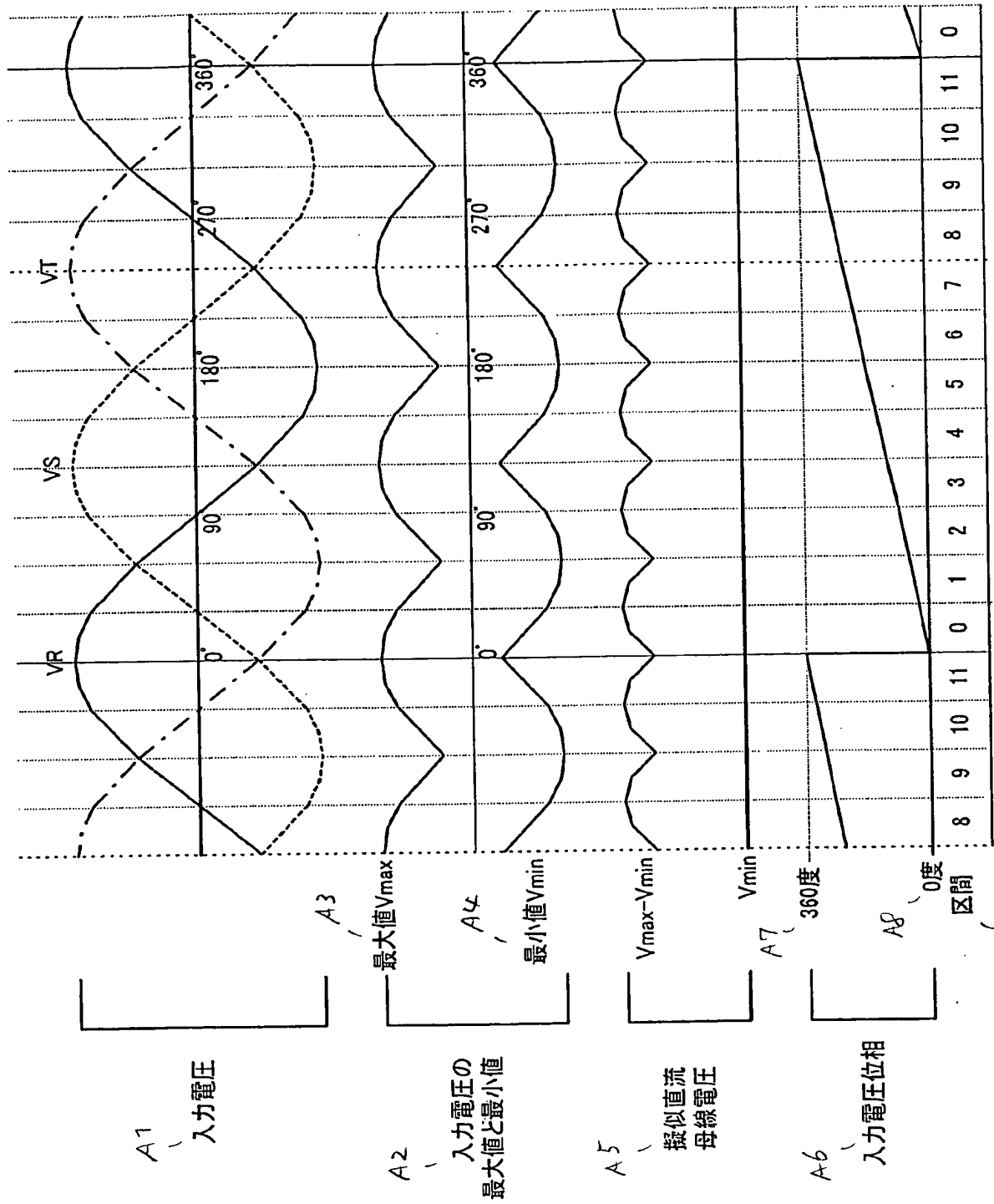
A7

入力電源電圧位相、大きさ検出器4の詳細図



[図3]

Fig. 3



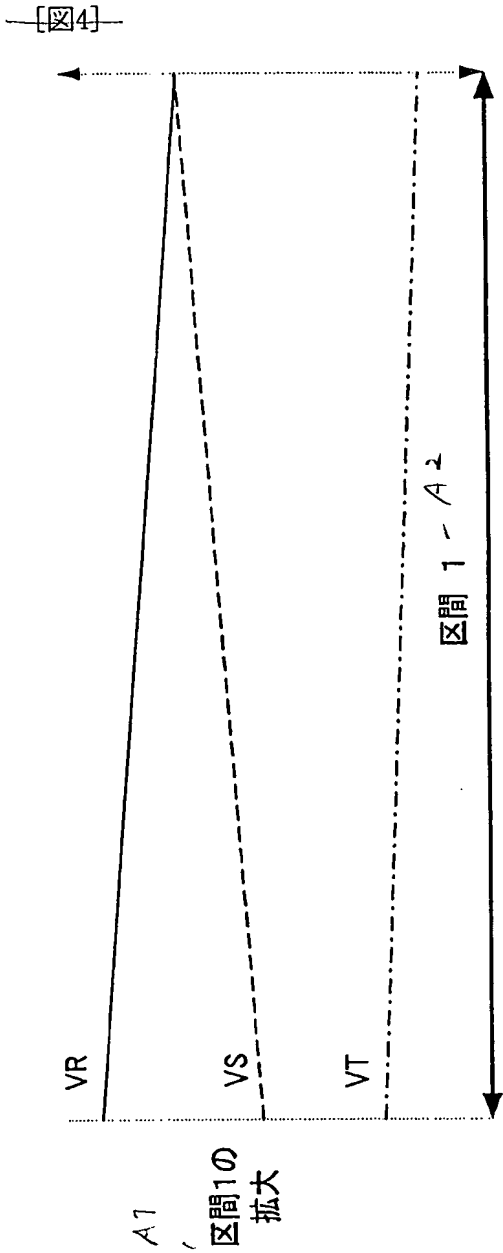


Fig. 4

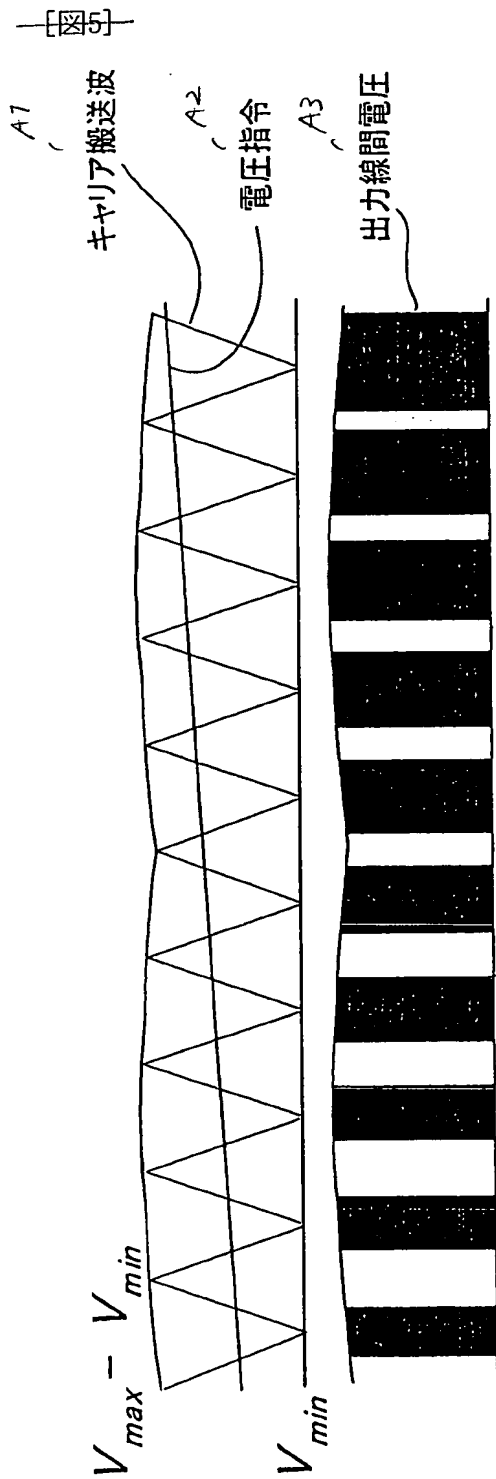
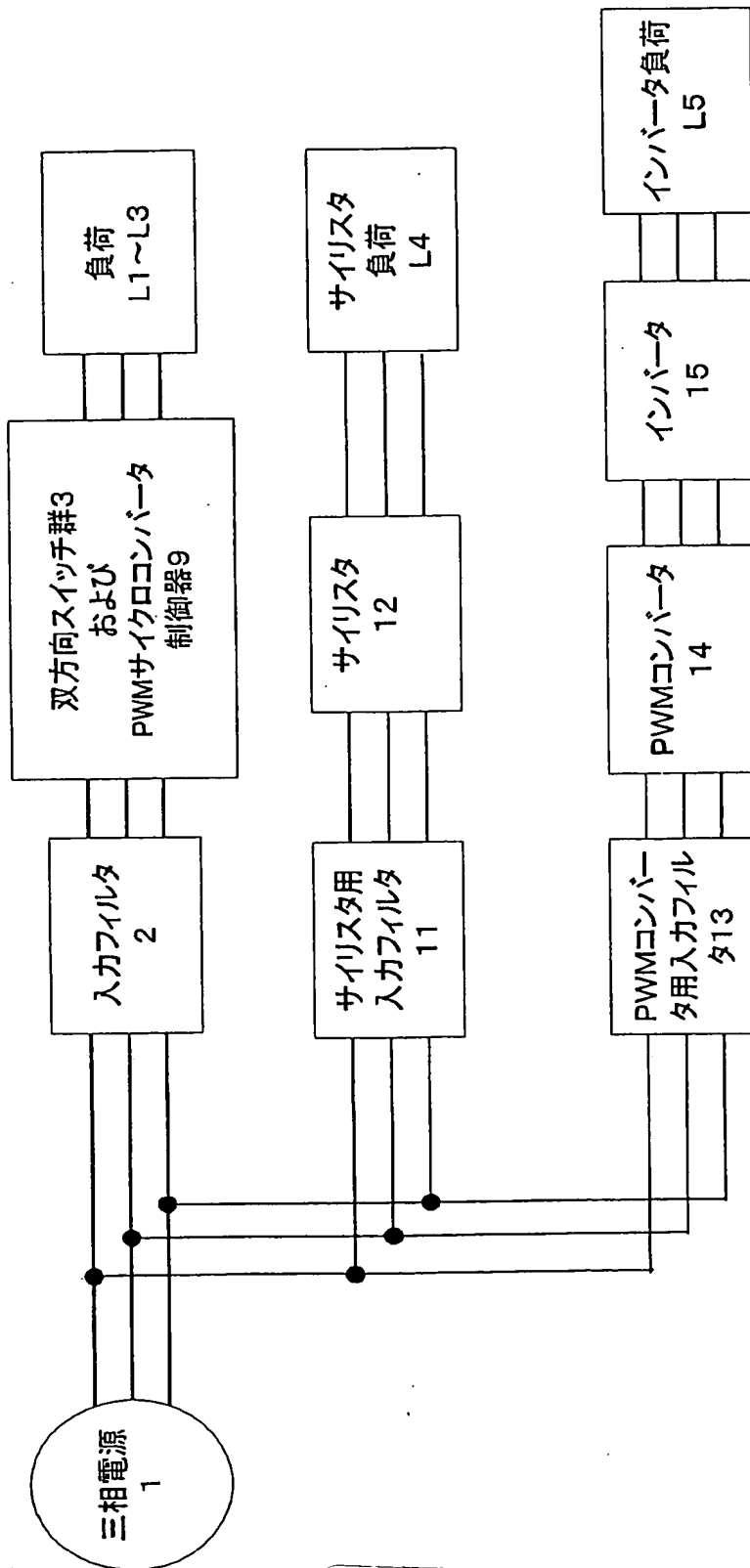


Fig. 5

[図6]

Fig. 6



[図7]

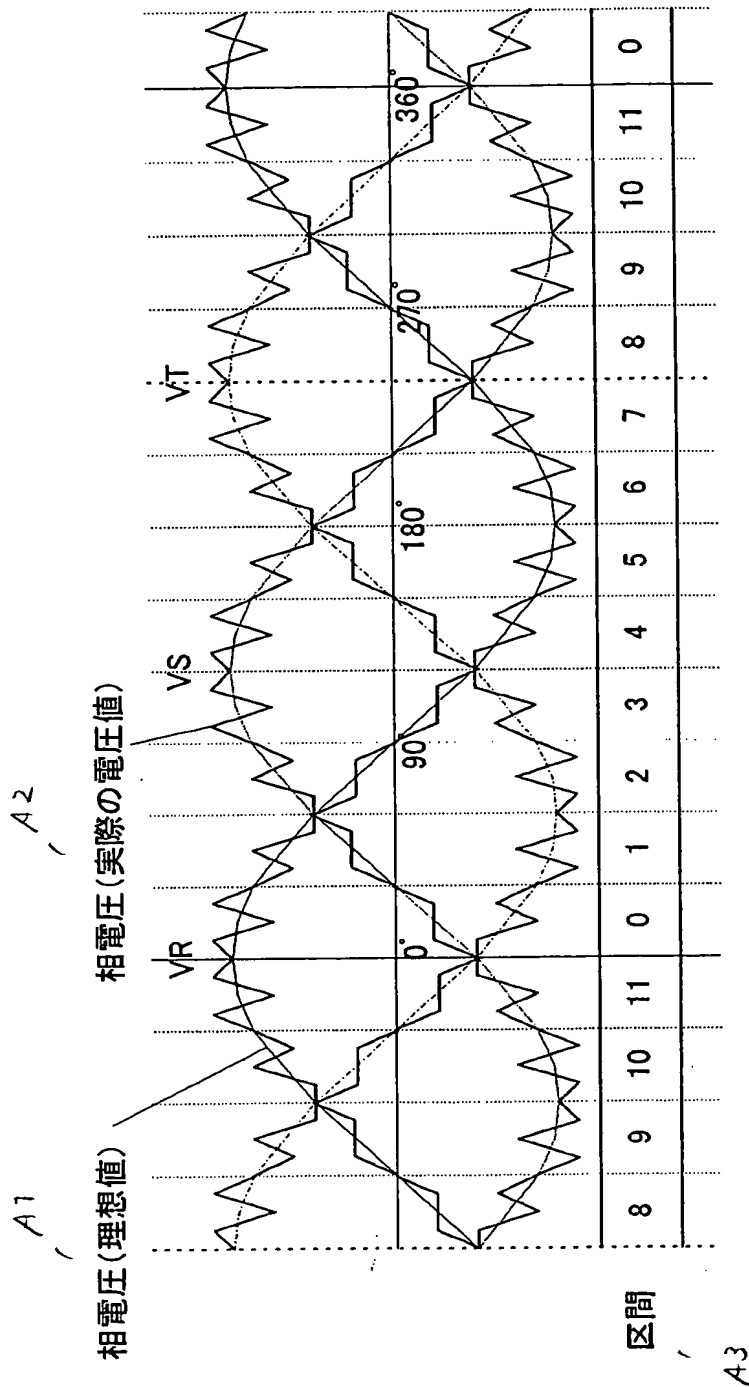


Fig. 8

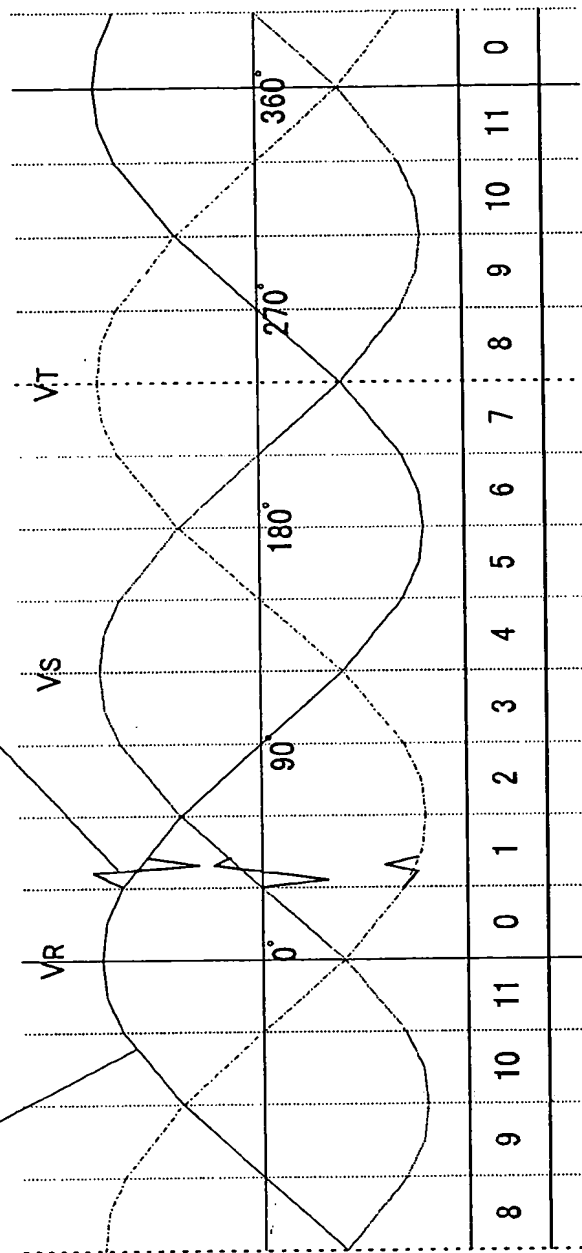
8

A2

A7

相電圧(理想値)

相電圧(実際の電圧値)



区間

A3

—[図9]—

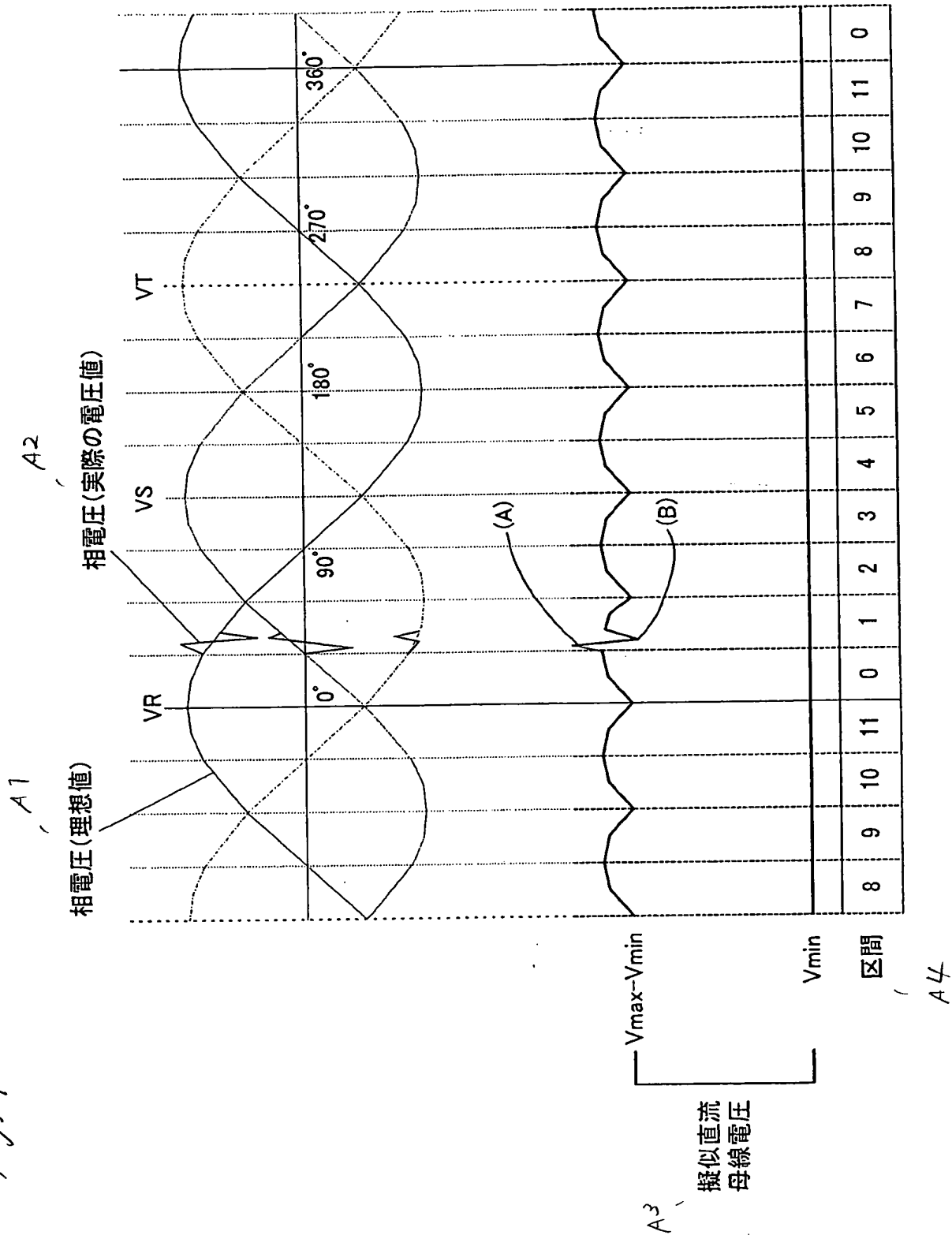


Fig. 10

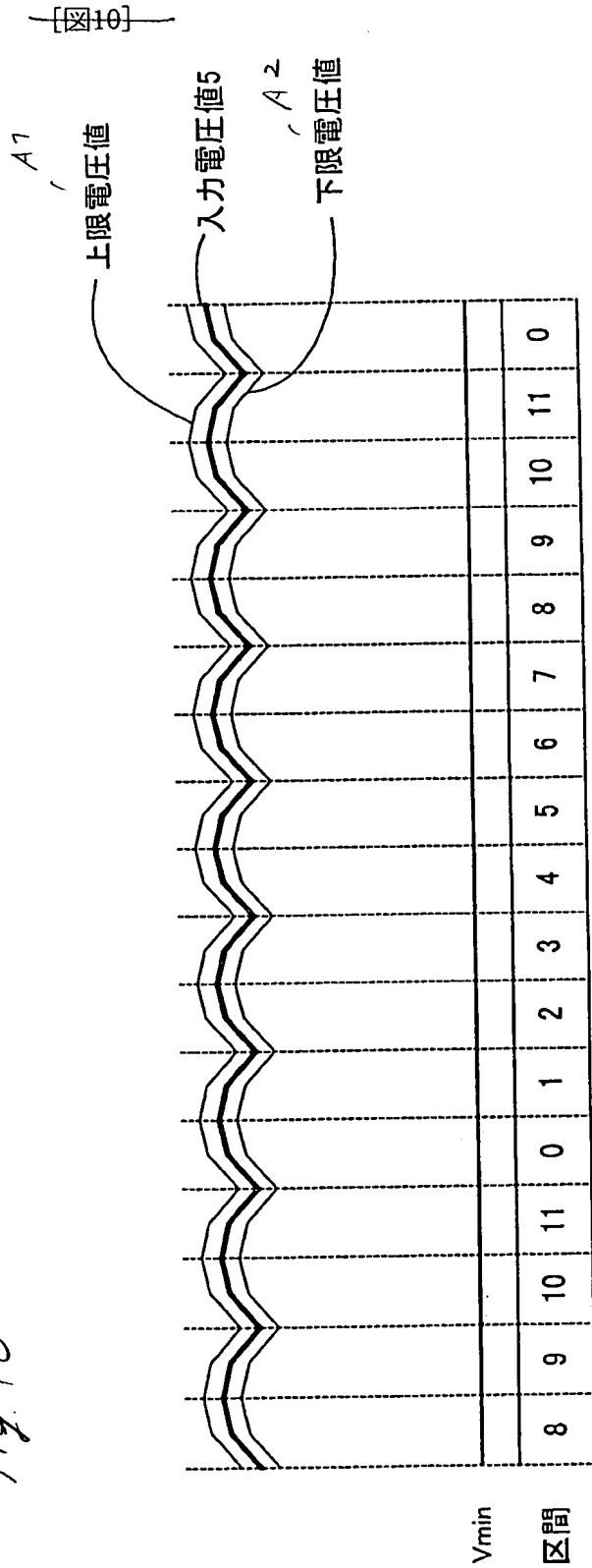
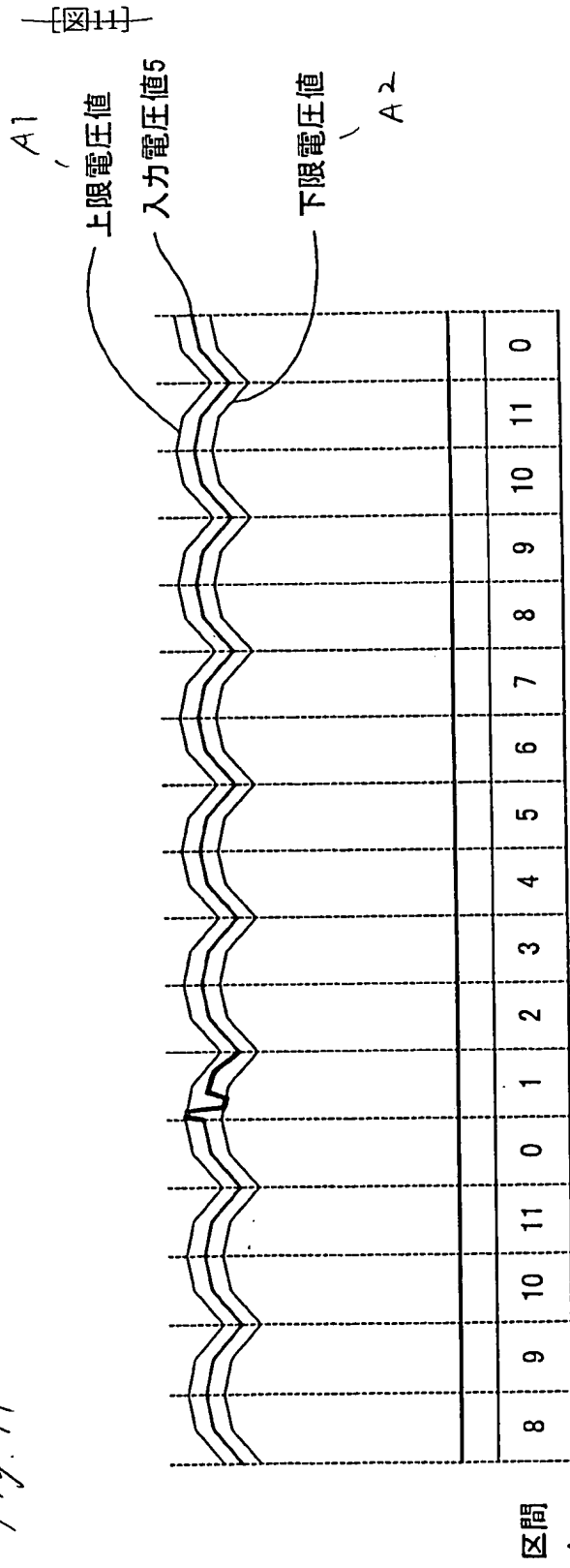
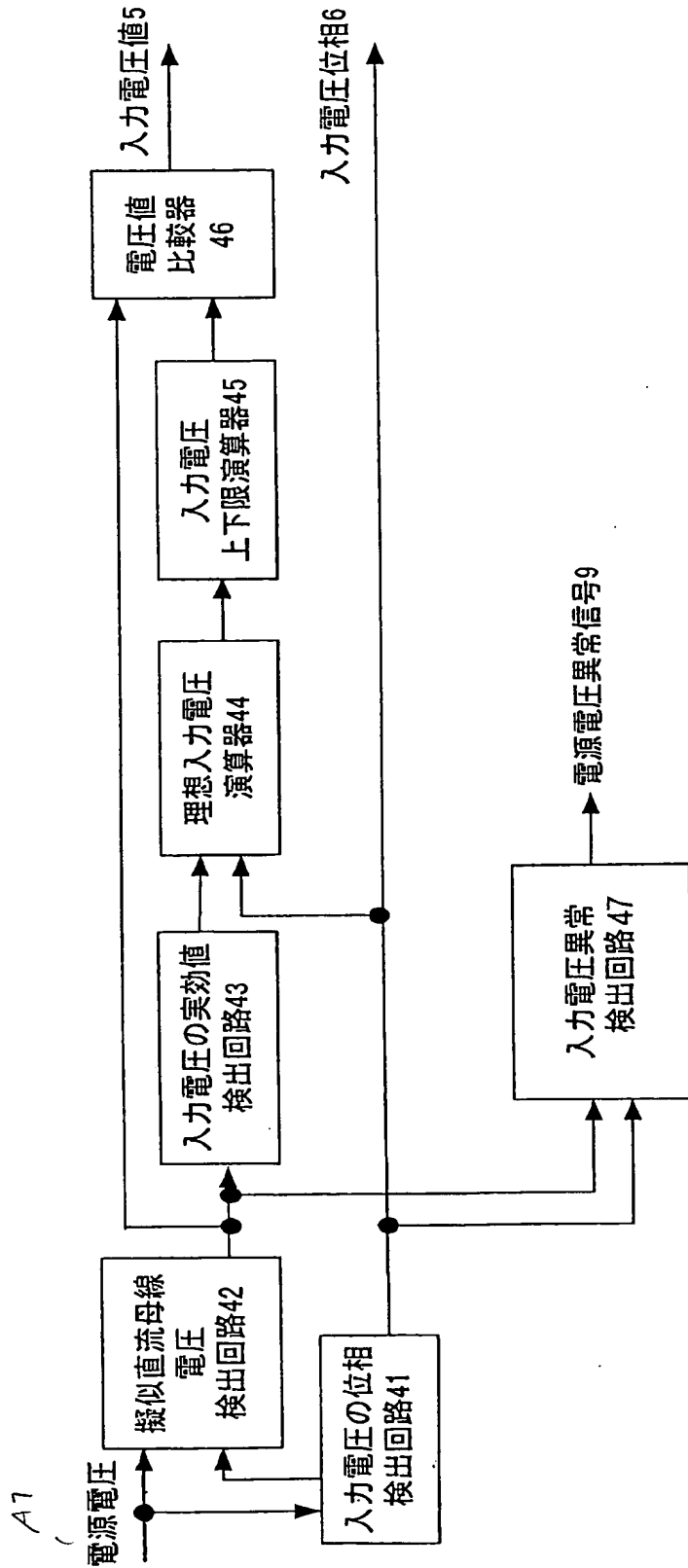


Fig. 11



[図12]



[図13]

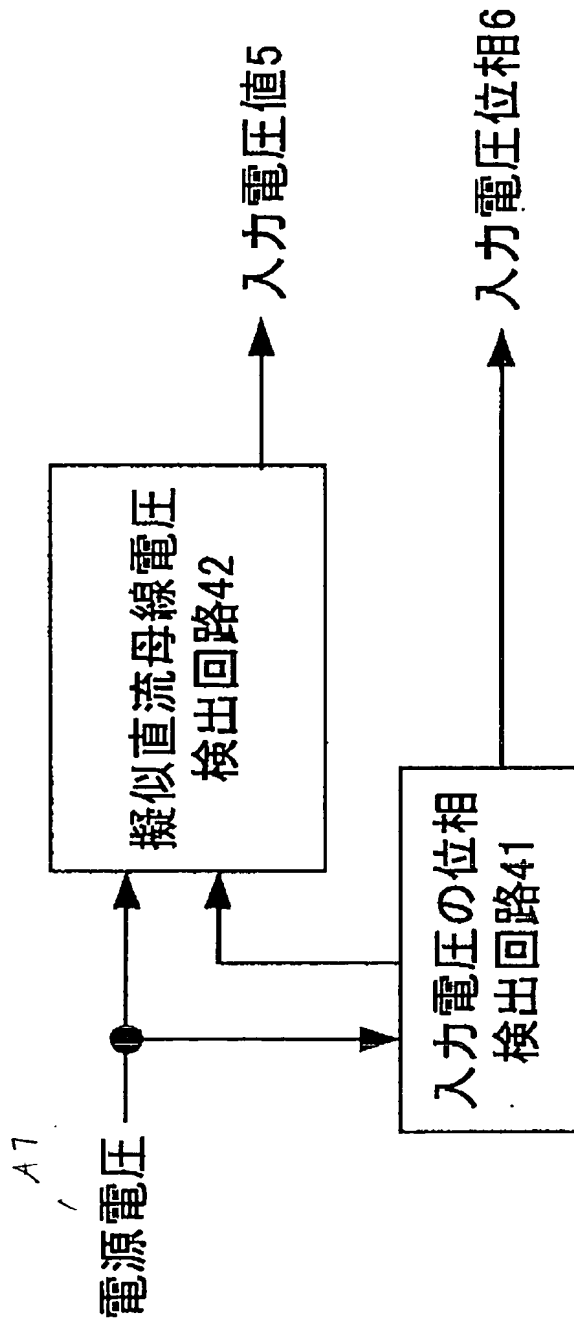


Fig. 14

[図14]

